

Appln No. 10/044,413

Amdt date February 28, 2005

Reply to Office action of August 26, 2004

REMARKS/ARGUMENTS

Claims 1-15 were pending in the application. In the Office action mailed August 26, 2004, the specification was objected to, claims 2-6 were rejected under 35 U.S.C. §112, second paragraph, and claims 1-15 were rejected under 35 U.S.C. §102. Applicant thanks the Examiner for attention to the application.

Claims 1-8 and 11-15 are now cancelled. Claims 9 and 10 are amended. Claims 16-20 are new.

The title of the invention is objected as not being descriptive, and the title "Low-Density Parity Check Forward Error Correction" is suggested in the Office action. This suggestion is taken, and the title is now amended to "Low-Density Parity Check Forward Error Correction".

The disclosure is objected to because of a number of informalities. The Office action suggests that at page 1, line 10 "inherit" should be "inherent". The Office action is correct, and "inherit" is now changed to "inherent". The Office action suggests that "priority" on page 4, line 18 should be "parity". The Office action is correct, and "priority" is now changed to "parity". The Office action indicates that "c<sub>be</sub>" on page 4, line 22 should be "c<sub>xb</sub>". The Office action is correct, and "c<sub>be</sub>" is now changed to be "c<sub>xb</sub>". The Office action indicates that "comprises of" on page 4, line 30 should be "comprised of". The Office action is correct, and "comprises of" is now changed to "comprised of". The Office action also indicates that "priority" on page 5, line 5 should be "parity". The Office action is correct and "priority" is now changed to "parity". The Office action also indicates that "fiberoptic" on page 6 in lines 4 and 5 apparently should be "optical fiber". A review of the specification indicates that perhaps "fiberoptic line"

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should be "optical fiber". Accordingly, on page 6, lines 4 and 5 "fiberoptic line" is changed to "optical fiber". The Office action indicates that "word have" on page 7, line 15 should be "word has". The sentence at issue is "each of the bits of the received word have three parity checks 67,...". Accordingly, it appears that "have" refers to the bits of the received word, and not the received word itself. Accordingly, it is believed that "word have" is appropriate in the context of page 7, line 15. With respect to the foregoing, it is noted that there is a slight discrepancy in some instances between the line number of the text, and the line number indicating along the side of the margin. For consistency, the line numbering as indicated in the Office action is used in the foregoing. As replacement paragraphs are used for the specification, it does not appear that any ambiguity is introduced by doing so.

Claims 2-6 were rejected under 35 U.S.C. §112, second paragraph. Claims 2-6 are now cancelled, and the rejection is believed moot.

Claims 9 was rejected under 35 U.S.C. §102(b) as being anticipated by "Time-Varying Periodic Convolutional Codes With Low-Density Parity-Check Matrix" by Felstrom et al. ("Felstrom"). Claim 9 previously, and currently, specified a "low density parity check matrix having an extended portion formed of a plurality of blocks of an original low density parity check matrix." The Office action indicates that "Felstrom shows (Fig. 3e) a 'linked low density parity check matrix' of the LDPC code formed by Felstrom's encoder, which is formed by 'extending a portion of an original LDPC matrix' as also shown (Figs. 3a-3c)." Office action, p. 4.

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Claim 9 has been amended to further specify "each block having the same number of elements and elements within each block having the same relationship to each other within the original low density parity check matrix,...". The Office action further indicates that "[t]he 'portion' is shown shaded (Fig. 3a) and includes a 'base portion' (two '1' elements), an 'upper extending portion' (two '0' elements above the 'base portion') and a 'sideways extending portion' (two '0' elements beside the 'base portion')." Office action, pgs. 5 and 6. It is respectfully noted that the two 1 elements in Felstrom's original LDPC matrix are at a diagonal, while the two 0 elements of the upper extending portion are, with respect to the matrix, vertically placed with respect to one another and the two 0 elements of the sideways extending portion are placed horizontally with respect to one another. Referring, for example, to FIG. 4 of the application and also the last paragraph of page 6 of the specification, each block has elements having the same relationship (in position) to one another. It is respectfully submitted that Felstrom neither discloses or suggests such.

In addition, claim 9 as amended, specifies that "the blocks of the extended portion of the original low density parity check matrix being formed of elements below a psuedo-diagonal of the original low density parity check matrix." See, e.g., FIG. 4 of the application and p. 6, last paragraph of the specification. Referring to FIG. 3 of Felstrom, it appears that the LDPC matrix of Felstrom is cut along its diagonal, and not a pseudo-diagonal as specified in claim 9. Accordingly, claim 9 is further allowable.

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Claim 10 was also rejected under 35 U.S.C. §102(b) as being anticipated by Felstrom. Claim 10 was also rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,023,783 to Divsalar et al. ("Divsalar").

Claim 10 has been amended to include limitations of claims 11-15. As Divsalar is not mentioned with respect to the rejection of claims 13-15, it is believed that the rejection in view of Divsalar is now moot. Claims 11-15, however, were rejected as being anticipated by Felstrom. Claim 10, as amended, further specifies "wherein each element of the upper extending portion is above each element of the base portion; and wherein each element of the sideways extending portion is to the side of each element of the base portion." In Felstrom it appears that one element identified in the Office action, namely one of the ones, is to the side of one of the zero's identified as being in the upper extending portion, and is above one of the zero's in the sideways extending portion. Accordingly, it is believed that claim 10, as amended, is allowable in view of Felstrom. Claims 16-20, new in the application and depending on claim 10, are believed to further define the invention in patentable manner, and are supported by the application as filed (see, e.g., pgs. 6 and 7 and FIGs. 4, 5 and 6).

Accordingly, the application is now in condition for allowance, and allowance of same is respectfully requested.

Respectfully submitted,

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